BLACK & ASSOCIATES
2052 Bridgegate Court • Westlake Village, California 91361 • (805) 495-7619

April 19, 1997

Office of the Secretary
Federal Communications Commission
Washington, D.C. 20554

Re: Notice of Proposed Rule Making
WT Docket No. 97-81

Dear Sir or Madam:

Please find attached an original and five copies of comments by Black & Associates to the Notice of Proposed Rule Making. Please date stamp one copy and return in the stamp addressed envelope provided.

Sincerely,

Sydney T. Black

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Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
Amendment of the Commission's Rules Regarding Multiple Address Systems	))	WT Docket No. 97-81

To the Commission:

Comments of Black & Associates

Black & Associates, persuant to Section 1.415 of the Federal Communications Commission's Rules, hereby submits these comments on the above-captioned proceeding in response to the Notice of Proposed Rule Making released on February 27, 1997 by the Commission.

Black & Associates are frequency coordinators who are qualified to comment on the proposed rule making because of our considerable experience with point-to-multipoint system design, coordinations and applications at 928/959 MHz and 928/952/956 MHz , since 1986.

SUMMARY

Black & Associates opposes the introduction of mobile service into the point-to-multipoint bands; recommends the quantity of frequency pairs allocated to non-subscriber private radio service be increased; agrees that subscriber based services be limited to the 932/941 MHz band; recommends

a finders preference in the 928/952/956 MHz band; opposes nationwide and regional licenses in the 932/941 MHz band; opposes geographic licensing in the 928/952/956 MHz bands; recommends incumbent protection criteria in the 928/952/956 MHz bands; opposes point-to-multipoint, point-to-point and mobile services sharing the same frequency pair.

MOBILE SERVICE (PAR. 42)

The whole concept for multiple address systems at 932/941 MHz, 928/952 MHz, and 928/959 MHz was fixed microwave, be it private or common carrier. Many applicants have obtained licenses at these frequencies because of the protection it provided due to the minimum separation requirements between co-channel systems. To change the concept to permit mobile service, such as specialized mobile radio (SMR) in these bands would defeat the purpose of fixed microwave. It would appear to be one aim of the proposed rule making because of the request for comment on whether it should be allowed and also because of the frequent reference to similar rules adopted in other bands used for cellular and SMR licensing. It would appear that adoption of the proposed rule changes would lead to degradation of the multiple address bands because of increased co-channel interference. Even with the current rules on minimum co-channel separation, there are numerous cases of co-channel interference besides long distance interference due to unusual propagation conditions.

The proposal to allow mobile service in the 928/959 MHz and 928/952/956 MHz bands as well as the 932/941 MHz band cannot be met by the current available frequency spectrum. To permit mobile service with their insatiable demand for spectrum bandwidth would severely limit the spectrum for fixed operations. There is an urgent need for new spectrum to be allocated just to provide the frequencies required for private and subscriber based fixed services without the addition of mobile service.

The 932/941 MHz point-to-point band is available to Government and non-Government users such as private radio and common carrier. Since this band opened in 1995, at least 95% of the non-Government applications have been for private radio. Similarly, over 90% of the applications for the split 23 GHz common carrier and private radio bands are private radio.

Combining the experience in other bands, albeit point-to-point microwave, with that in the multiple address bands, indicates that additional point-to-multipoint spectrum is required for private radio. Allowing mobile services into the 932/941 MHz, 928/959 MHz or 928/952/956 MHz bands cannot be justified in light of the shortage of spectrum to meet current and future fixed point-to-multipoint requirements.

TREATMENT OF THE 932/941 MHZ AND 928/959 MHZ BANDS (PAR. 9)

The current point-to-multipoint frequency band at 928/952/956 MHz and to a slightly lesser extent the 928/959 MHz band, are highly congested nationwide with duplex frequency pairs in the former band unavailable even in many less populated areas. Except for any non-renewed licenses, the 928/952 MHz band is closed in the top 50 markets and has been for years in most of these markets. A scattering of frequency pairs is available in the next 50 markets.

In fact, because of the shortage of frequency pairs, many private radio applicants have had to file for a Part 101 or Part 22 one-way frequency to be used in a simplex mode. This is a less efficient means of operating. Other applicants have had to combine a Part 101 one-way frequency with a Part 22 one-way frequency to form a frequency pair, or use a point-to-point frequency pair in the 932/941 MHz or 953 to 953.7 MHz bands as a point-to-multipoint frequency pair. Where none of these options were possible, applicants have been forced to consider spread spectrum or leased telco

lines or terminate their proposed communications plans. This has been especially hard on local government entities who want to reduce their operating costs and have a need for communications facilities. The non-availability of frequency pairs for private radio is very acute.

The 928/959 MHz band is used primarily (75%) by Part 22 land mobile licensees in the major cities to control their paging transmitters and as a means to deliver the paging information to the transmitters for distribution to their subscribers. Outside of these areas, the band is used by Part 101 private radio licensees (25%) principally in the petroleum and utility industries because all 928/952 MHz frequency pairs are exhausted. This is particularly true, for example, in west Texas, east New Mexico, south Oklahoma, east Missouri and east Iowa.

In the less populated areas, the only point-to-multipoint spectrum available is in the 928/959 MHz band. To assign this band to only subscriber based services would deny the band to private radio applicants who would have no other band in which to file an application. The 928/959 MHz band should continue to be available for shared common carrier and private radio services and not be reassigned to subscriber based services.

The 50,000 plus applications filed in 1992 for the 932/941 MHz band, of which over 95% were for subscriber based services, started a speculation trend that overflowed into the 928/952 MHz and the 928/959 MHz bands. That trend appears to have finished with the licensees finding there was not a ready market for their systems and licenses. To categorize the 932/941 MHz band as principally subscriber based may have been true in 1992 but the marketplace has changed and the speculation subsided.

There will be a need for subscriber based services and these should be limited to the 932/941 MHz band. However because of the shortage of point-to-multipoint spectrum for private radio services

a portion of this band should be reserved for private radio use. It is suggested that fifteen frequency pairs in the 932/941 MHz band be assigned to private radio and the remainder to Government and non-Government use including subscriber based services.

TREATMENT OF THE 928/952/956 MHZ BANDS (PAR. 12)

Without performing a detailed analysis, it is estimated that up to 15% of the licenses in the 928/952 MHz band are for speculative subscriber based services. It is probably fair to say that a large percentage of these licenses are not constructed in accordance with the Rules and Regulations and many have not been since 1993. Also, it is estimated that another 25% of non-subscriber based licenses are warehoused or no longer actively used.

There should be a mechanism to take back these licenses and make the frequency pairs available for reassignment. Also, a finders preference should be considered in the 928/952/956 MHz bands.

NATIONWIDE AND REGIONAL LICENSES (PAR. 18)

Nationwide and regional frequency pairs would be an advantage to paging licensees who simul-cast, and for mobile service. However, there has been a trend in the paging industry to use satellite control frequencies instead of frequencies in the 928/959 MHz band for economy and flexibility. That being the case, there is no requirement for nationwide and regional frequency pairs in the 932/941 MHz band for paging that cannot be met in the 928/959 MHz band. Nationwide and regional frequency pairs for mobile service is not an issue since mobile service should not be permitted in these bands.

GEOGRAPHIC LICENSING (PAR. 14)

During the past ten years that Black & Associates have been coordinating frequencies in the 928/959 MHz and 928/952/956 MHz bands, we have been asked once if it would be possible to obtain a nationwide frequency pair and once for a statewide frequency pair. There is one private licensee that uses the same frequency pair for alarm monitoring over a large portion of one state. Another alarm company uses the same two frequency pairs in multiple major cities. A third licensee provides a monitoring and control service to the electric utility industry using different frequency pairs in cities nationwide. Each of these licensees would benefit from geographic licensing, instead of on a site-by-site basis, because of the nature of their system design and operation.

There are other licensees who have point-to-multipoint systems at various locations in many states, but their system design would not necessarily permit operation on a geographic basis without causing co-channel intra-system interference. The 928/952 MHz band is primarily used for data transmission. Based on the experience found from existing data communications systems suffering harmful interference from co-channel systems that are spaced in accordance with current rules for separation, reusing the same frequency pair within a geographic area with a separation less than the current requirements will lead to more frequent loss of data and system integrity. Voice loaded systems can tolerate harmful interference to a greater degree.

The great majority of private applications and licenses in these bands are for non-subscriber based services for banks, electric utilities, grain cooperatives, pipelines, railroads, school districts and water districts, etc. that serve four or more remotes within relatively limited areas.

Geographic licensing would not be advantageous for many of the small business private fixed applicants and licensees who only need to communicate between a single central point and the

remotes in a relatively small area. Having a much larger Economic Area (EA) would not benefit the licensees who have no need to expand or to have greater operational flexibility. The financial cost of geographic licensing could pose a problem for these applicants and force them from the market.

Because the 928/952 MHz band is congested in most areas of the country, applicants for a geographic license in this band would probably find an EA that includes a major market not to be a viable proposition.

Even though a few large business licensees would benefit from geographic licensing, private fixed MAS licenses in the 928/952 MHz band should continue to be awarded on a site-by-site basis.

A case could be made for geographic licensing of frequencies in the 956 MHz band that are used for mobile meter reading systems. However, the majority of applications for mobile frequencies are for a single area of 25 miles radius by local governments. An EA would be too large for the majority of mobile systems. Mobile MAS licenses should continue to be awarded on a site-by-site basis.

INCUMBENT PROTECTION (PAR. 20)

If geographic licensing is implemented, the incumbent licensee if not the same entity, will be at the mercy of the geographic licensee both technically and administratively. The proposed rule making is requesting comment on what protection the incumbent should be afforded from co-channel interference by the geographic licensee and suggests that the incumbent protected service area be 25 miles. Assuming a 25 mile service area is unrealistic for systems in mountainous areas where radii of up to 45 miles and beyond are possible. Many Part 22 licensees in the 928/959 MHz band operate with radii beyond 45 miles even in non-mountainous areas.

The typical incumbent private radio licensee uses a master station transmitter power of 5 watts and a 9 dBd gain omni-directional antenna. The calculated freespace signal level (C) from a half-wave dipole receive antenna at 25 miles would be -73.8 dbm. The field strength of 40 dB above 1 microvolt per meter that is proposed for EA licenses at the service area boundries, would produce an interference signal level (I) of -94.6 dbm from the same receive antenna, assuming an omni-directional remote antenna, which is the case for many systems. This results in a C/I of 20.8 dB. To prevent carrier beat into analog systems, a C/I of at least 68 dB is desireable. This is achieved most of the time with the current minimum separation requirements for co-channel operation. A digital receiver with a typical 10-6 threshold of -105 dBm to -110 dBm and threshold/interference ratio of 10 db would be impacted by an interference signal level of -91.6 dBm assuming a 3dBd gain omni-directional receive antenna. Many point-to-multipoint systems are operating with typical receive levels between -80 dBm and -95 dBm.

The interference protection rules given in Part 101.105(c)3 should be grandfathered for incumbents or the maximum field strength should be limited to 10 dB above one microvolt per meter at the remote furtherest from the incumbent master station beyond 25 miles. A geographic licensee should determine this remote location from the incumbent and limit the field strength to the maximum value allowed.

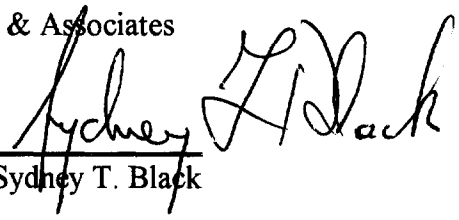
MIXED SERVICE OPERATION (PAR. 42)

Mixing point-to-multipoint, point-to-point and mobile services in the same band is a recipe for intra-service harmful interference. The services are not compatible. The point-to-point service in particular would be vulnerable to interference from a mobile service. Coordinating a point-to-

point system requires knowledge of other systems in the environment, including their location and geometric relationship for antenna discrimination. With mobile service, the mobile location is random and unkown. Mobile service on a co-channel or adjacent channel frequency pair could interfere with fixed point-to-point and point-to-multipoint systems. Fixed point-to-multipoint systems with hundreds of remotes pose a real problem for point-to-point frequency coordination. Point-to-multipoint, point-to-point and mobile services should not be in the same frequency band. The multiple address spectrum should be reserved for point-to-multipoint operations.

Respectfully submitted,

Black & Associates

By: 

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